

ABSTRACT OF THE DISCLOSURE

A GaN-based FET has a buffer layer structure including GaN first buffer layer and an AlGaN second buffer layer between
5 a substrate and an active layer structure including a channel layer and a donor layer. The GaN first buffer layer and the AlGaN second buffer layer reduce dislocation defects in the active layer structure and allows the FET to have a lower leakage current and a satisfactory pinch-off characteristic. A plurality of GaN first
10 buffer layers and a plurality of AlGaN second buffer layers may be deposited alternately one on another on the substrate.